WHAT IS CLAIMED IS:

1. A gauge comprising concentric inner and outer tubes made of insulating material, and two capacitors each formed by a set of electrodes, each set having at least one pair of two electrodes in the form of strips extending along the gauge and placed facing each other on facing walls of the inner and outer tubes.

2. A gauge according to claim 1, wherein the strips are disposed longitudinally, parallel to the axis of the tube, or else are disposed helically.

3. A gauge according to claim 1 or claim 2, wherein the strips occupy angular sectors of the same magnitude, and both sets of electrodes are identical.

4. A gauge according to claim 1 or claim 2, wherein each set of electrodes is constituted solely by two strips facing each other.

5. A gauge according to claim 1 or claim 2, the gauge being provided with means for decoupling the two sets of electrodes.

6. A gauge according to claim 1 or claim 2, wherein at least one of the tubes carries metal shielding or guard strips connected to ground, carried by the facing faces of the tubes and separating the two sets of electrodes.

7. A gauge according to claim 1 or claim 2, wherein the outer tube carries a grounded shielded connection box containing, for each capacitor, a connector for connecting a low impedance line to an excitation electrode of the set of electrodes, and a connector for connecting a high impedance line to the other electrode of the set.

8. A system for measuring the quantity of fuel in at least one tank, the system comprising at least one gauge according to claim 1, and a central measuring unit provided with two independent sets of electrodes each having means for exciting one of the capacitors with alternating current by feeding one of the electrodes of the corresponding set, and a channel for measuring signals coming from the other electrode of the set.

9. A system according to claim 8, wherein decoupling is provided between the measurements by using two different frequencies for exciting the capacitors, and by discriminating between the signals by means of filters, or by using excitation by means of an electrical signal sequence in application of a particular repetitive pattern for each channel, associated with autocorrelation processing of the measurement signal.